

Docket No. 180577-00160

REMARKS

Claims 1-9 are pending in this application. Claims 10-18 were previously cancelled.

1. Prior Objection to Drawings Under 35 CFR 1.83(a)

Applicant notes with thanks that the Examiner has withdrawn the prior objection to the drawings.

2. Rejection of Claims 9 and 18 Under 35 U.S.C. §112, Second Paragraph

Applicant notes with thanks that the Examiner has withdrawn the prior rejection of Claim 9 under 35 U.S.C. §112, second paragraph.

3. Rejection of Claims 1, 2, 4, 5 and 7-8 Under 35 U.S.C. §103(a)

The Examiner has rejected claims 1, 2, 4, 5 and 7-8 as obvious over Le Diouron (U.S. Patent No. 4,538,423) in view of Wisniewski et al. (U.S. Patent No. 6, 196,296). Applicant respectfully requests reconsideration and withdrawal of this rejection for the following reasons.

Le Diouron does not disclose a reactor, but rather a cooling apparatus (heat exchanger) for use in gas purification (see Col. 2, lines 23-27). Accordingly, Le Diouron does not have a reaction zone. The cooling apparatus of Le Diouron is for condensing components from a gas mixture (Col. 1, lines 61-64). As such, it is respectfully submitted that reactor designers would not look to Le Diouron for inspiration. Further, as the Examiner has recognized, Le Diouron does not disclose or suggest the use of thermally conductive extended heat transfers surfaces, comprised of **sealed secondary heat pipes**, on a principal heat pipe.

Wisniewski does not overcome the limitations of Le Diouron because Wisniewski does not teach the use of **either** a principal heat pipe or a sealed secondary heat pipe in thermally conductive relation with the principal heat pipe.

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As indicated at Col. 9, lines 55-67 of Wisniewski, the only embodiment of Wisniewski which discloses fins which contain a heat transfer fluid (shown in Figure 11) has fins into which heat transfer flows through **openings 106** (not shown in the Figure which is numbered incorrectly) in structure 108 (Col. 9, line 58). Accordingly, contrary to the Examiner's finding, the fins of Wisniewski are not **sealed** secondary heat pipes as claimed but rather conventional heat transfer surfaces. (As explained in the present specification, a heat pipe contains an evaporating heat transfer fluid and evaporator and condenser sections. (Specification, page 5, lines 5-15; and page 15, lines 2-5)). Further, structure 108 is not a (principal) heat pipe having an evaporation section containing a liquid heat transfer fluid for absorbing the heat of reaction by evaporating to form a vaporized heat transfer fluid which is conveyed from the reaction zone.

What the Examiner refers to as a central heating/cooling pipe 8 (structure 108 in Figure 11) does not have an evaporator section in a reaction zone, because it has neither a reaction zone nor an evaporator section. Wisniewski, like Le Diouron, does not disclose a reactor, but rather a heat transfer device for heating, cooling, thawing and freezing biopharmaceutical products (Col. 1, lines 25-30). Structures 8 and 108 are heated or cooled by flowing a heat exchange fluid down interior passage 12 towards end piece 14. The heat exchange fluid then flows up through the outer passage 16 of structure 8 (Col. 6, lines 14-18). Thus Wisniewski does not contain a heat pipe with an evaporator section of the type claimed. (It is the structure of the heat pipe which utilizes the evaporation of a heat transfer fluid to absorb heat which enable such devices to operate at isothermal conditions, unlike the conventional heat exchanger described by Wisniewski which is not isothermal. Accordingly, Applicant submits that its prior arguments with regard to the claimed device achieving heat transfer at isothermal conditions did related to structural differences).

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Since Wisniewski's primary heat transfer surface is not a heat pipe as claimed and its secondary heat transfer surface is not a sealed heat pipe, Wisniewski cannot overcome the limitations of Le Diouron. Further, the Examiner's combination of Le Diouron and Wisniewski without the benefit of suggestion in either of the references relies upon improper hindsight.

4. Rejection of Claims 1, 3, 6 and 9 Under 35 U.S.C. §103(a)

The Examiner has rejected Claims 1, 3, 6 and 9 as obvious over Grunes (U.S. Patent No. 4,393,663) in view of Wisniewski.

Applicant requests reconsideration and withdrawal of this rejection. Grunes does not disclose a reactor with a reaction zone between two tubesheets. Rather, Grunes discloses a thermosyphon heater which has **no** internal reaction zone. Structure 16 which the Examiner characterizes as an internal reaction zone is only a heat source (Col. 3, lines 48 and 60).

Further, as the Examiner has acknowledged, nothing in Grunes discloses or suggests the use of secondary sealed heat pipes in conjunction with a primary sealed heat pipe. For this, the Examiner relies upon Wisniewski. However, as explained above Wisniewski does not contain a **sealed** secondary heat pipe mounted on a primary heat pipe which absorbs the heat of reaction by exaporation of a heat transfer fluid and Wisniewski's secondary heat transfer surface is not a sealed heat pipe since it has openings 106 so that fluid can flow into interior pasageway 104 (Col. 9, lines 55-58). Accordingly, Wisniewski's secondary heat transfer surface fails to recognize the advantages of the presently claimed sealed heat pipes.

Since neither Grunes nor Wisniewski disclose reactors and Wisniewski does not in any event teach the use of sealed secondary heat pipes mounted on a primary heat pipe, it is respectfully submitted that the combination of Grunes and Wisniewski cannot not render claims 1, 3, 6 and 9 obvious. Further, the combination of Grunes and Wisniewski without the benefit of

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suggestion in either reference relies upon hindsight driven by the present disclosure and is improper.

**Conclusion**

In view of the foregoing, withdrawal of all rejections and allowance of the pending claims is respectfully requested.

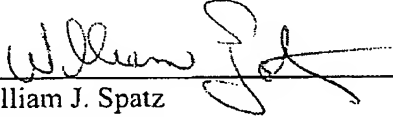
If the Examiner believes that there are any further issues which present an impediment to allowance, it is respectfully requested that the undersigned be contacted to conduct a telephone interview.

If additional fees are due, the Commissioner is authorized to charge the same to Deposit Account No. 50-0540.

Respectfully submitted,

KRAMER LEVIN NAFTALIS & FRANKEL LLP  
Attorneys for Applicants

By:

  
William J. Spatz  
Reg. No. 30,108  
(212) 715-9257

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